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RESPONSE UNDER 37 CFR § 1.111

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Title: Electronic Assemblies With High Capacity Heat Sinks and Methods of Manufacture

Assignee: Intel Corporation

IN THE CLAIMS

No claims are amended. The claims are reproduced here for the Examiner's convenience.

1. (Previously Presented) A method of making a heat sink, the method comprising: obtaining a quantity of thermally conductive metal; and

forming from the quantity a plurality of fins extending outwardly from a core in an asymmetric pattern, the core having a central axis, each fin having a base coupled to the core substantially parallel to the central axis, each fin further having a tip, wherein a face has a periphery defined by the fin tips, wherein the face is to face a heat-generating electrical component, and wherein the face comprises inter-fin openings.

2. (Original) The method recited in claim 1, wherein the fins are formed curved, the method comprising:

bending a portion of each fin in substantially the same relative direction.

- 3. (Original) The method recited in claim 2, wherein before bending the method comprises: separating the portion of each fin from the core.
- 4. (Original) The method recited in claim 3, wherein separating comprises: forming a cavity or channel in the core a predetermined distance along the central axis.
- 5. (Original) The method recited in claim 1, wherein the fins are formed straight, the method comprising:

bending a portion of each fin in substantially the same relative direction.

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6. (Original) The method recited in claim 5, wherein before bending the method comprises: separating the portion of each fin from the core.

- 7. (Original) The method recited in claim 6, wherein separating comprises: forming a cavity or channel in the core a predetermined distance along the central axis.
- 8. (Original) The method recited in claim 1, wherein forming comprises extruding the quantity of thermally conductive metal through an extrusion die.
- 9. (Original) The method recited in claim 1, wherein the thermally conductive metal comprises aluminum, and wherein the fins have an aspect ratio in the range of 10:1 to 12:1 or in the range of 14:1 to 16:1.
- 10. (Original) The method recited in claim 1, wherein the thermally conductive metal comprises aluminum, and wherein the radius at the base of the fins is in the range of 1.0 to 1.2 millimeters.
- 11. (Original) The method recited in claim 1, wherein forming comprises making a central cavity within the core.
- 12. (Original) The method recited in claim 11, wherein forming comprises extruding the quantity of thermally conductive metal through an extrusion die.
- 13. (Original) The method recited in claim 12 and further comprising: inserting a thermal plug into the cavity.
- 14. (Original) The method recited in claim 13, wherein the thermal plug comprises copper.

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15. (Previously Presented) A method comprising:

forming from thermally conductive metal a plurality of fins extending outwardly from a core in an asymmetric pattern, the core having a central axis, each fin having a base coupled to the core substantially parallel to the central axis, each fin further having a tip, wherein a face has a periphery defined by the fin tips, wherein the face is to face a heat-generating electrical component, and wherein the face comprises inter-fin openings.

16. (Original) The method recited in claim 15, wherein the fins are formed curved, the method comprising:

bending a portion of each fin in substantially the same relative direction.

17. (Original) The method recited in claim 16, wherein before bending the method comprises:

separating the portion of each fin from the core.

- 18. (Original) The method recited in claim 17, wherein separating comprises: forming a cavity or channel in the core a predetermined distance along the central axis.
- 19. (Original) The method recited in claim 15, wherein the fins are formed straight, the method comprising:

bending a portion of each fin in substantially the same relative direction.

20. (Original) The method recited in claim 19, wherein before bending the method comprises:

separating the portion of each fin from the core.

21. (Original) The method recited in claim 20, wherein separating comprises: forming a cavity or channel in the core a predetermined distance along the central axis.

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22. (Original) A method of making a heat sink comprising:

forming a core having a central axis and a surface to thermally contact a heat-generating component; and

forming from thermally conductive metal a plurality of fins extending outwardly from the core, each fin having a base and a tip, wherein the bases are coupled to the core substantially parallel to the central axis, wherein the tips define the periphery of a face to face the component, and wherein the face comprises inter-fin openings.

23. (Original) The method recited in claim 22, wherein the fins are formed curved, the method comprising:

bending a portion of each fin in substantially the same relative direction.

24. (Original) The method recited in claim 23, wherein before bending the method comprises:

separating the portion of each fin from the core.

- 25. (Original) The method recited in claim 24, wherein separating comprises: forming a cavity or channel in the core a predetermined distance along the central axis.
- 26. (Original) The method recited in claim 22, wherein the fins are formed straight, the method comprising:

bending a portion of each fin in substantially the same relative direction.

27. (Original) The method recited in claim 26, wherein before bending the method comprises:

separating the portion of each fin from the core.

28. (Original) The method recited in claim 27, wherein separating comprises: forming a cavity or channel in the core a predetermined distance along the central axis.